REMARKS

In the present application, claims 1-25 are pending. Claims 1-12, 16 and 25 were rejected. Claims 13-15 and 17-24 were allowed. Claims 1, 16 and 25 have been amended. No new matter has been added. As a result of this response, claims 1-25 are believed to be in condition for allowance.

Claim Objections

The examiner objected to the phrase "that the detector ..." in claim 16 and suggested that it be changed to "such that the detector ...". Claim 16 is amended herein to incorporate the suggested change. As a result, Applicants respectfully traverse the Examiner's grounds for objection.

Claim Rejections – 35 USC § 112

The Examiner rejected claims 16 and 25 as being indefinite for failing to define each variable in each equation. Claims 16 and 25 are amended herein to recite definitions for each variable in the claimed equations. As a result, Applicants respectfully traverse the Examiner's grounds for rejection.

Claim Rejections – 35 USC § 101

The Examiner rejected claims 1-12 as reciting non-statutory subject matter. Specifically, the Examiner asserted that "Claims 1-12 are directed towards a signal constellation which is simply a data signal. Note this data signal merely consists of "1" and "0" to represent the coded signal." After reciting a portion of MPEP §2106 IV.B.1.(b), the Examiner further asserted that "The signal is functionally equivalent to the compact disc in that it is nothing more than a carrier for nonfunctional descriptive material (1's and 0's). The nonfunctional material, or the signal for that fact, cannot alone provide the practical application for the manufacture. Without a communications device, the signal is nonfunctional, it produces or manufactures nothing."

Claim 1 is amended herein to recite "A multi-level space-time signal constellation stored by a **computer readable** storage media". (emphasis added). Support for this amendment may be found, at least, at page 3, line 27 of the application. Specifically, claim 1 is amended herein to make clear that the recited signal constellation is stored by a computer storage media.

As amended, claim1 recites:

A multi-level space-time signal constellation stored by a computer readable storage media, comprising:

a first level of a signal constellation defining at least one point

a second level of the signal constellation defining a plurality of points, wherein a distance between a point defined by the second level and a nearest point defined by the first level is a maximized minimum distance between conditional distributions, and

the signal constellation defines C points and an average power that is greater than or equal to a sum of the squares of the absolute value of each point divided by the number C.

Applicants respectfully disagree with Examiner's characterization of the claimed signal constellation. Specifically, the recited signal constellation is not, as the Examiner asserts, a data signal, it does not "merely consist of '1' and '0'", and it is not Nonfunctional Descriptive Material. With reference to MPEP §2106 IV.B.1, it is stated that "'functional descriptive material' consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions."...)". Further, at MPEP §2106 IV.B.1, it is clearly stated that "a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory".

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Applicants respectfully submit that the signal constellation of claim 1 may be viewed as a data structure stored on a computer readable medium and, as such, is statutory subject matter. Claim 1 particularly recites the logical relationship among data elements (the point, and plurality of points defined by the first level and second level, respectively, of the signal constellation). Allowed claim 13 recites numerous, specific structural elements for performing data manipulation functions supported by a data constellation of the invention. There is no requirement that claim 1 recite such specific data manipulation functions. It is therefore clear that the recited signal constellation of claim 1 forms a data structure. As it is additionally recited that the signal constellation is stored "by a computer readable storage media", it is therefore evident that claim 1 recites "structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory". As claim 1 is therefore directed to statutory subject matter, Applicants respectfully traverse the Examiner's grounds for rejection. Claim 1 is therefore in condition for allowance. As claims 2-12 depend on claim 1, they are likewise in condition for allowance.
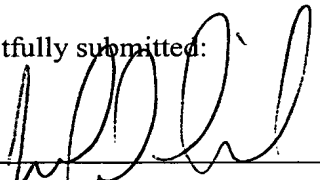
Allowable Subject Matter

The Examiner allowed claims 13-15 and 17-24.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

Respectfully submitted:

_____   _____23 Jan 06_____
Jeffrey R. Ambroziak   Date
Reg. No.: 47,387

Customer No.: 29683

HARRINGTON & SMITH, LLP

4 Research Drive

Shelton, CT 06484-6212

Telephone: (203)925-9400

Facsimile: (203)944-0245

email: hsmith@hspatent.com

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